

## Section 13-3 Cell Transformation (pages 327-329)

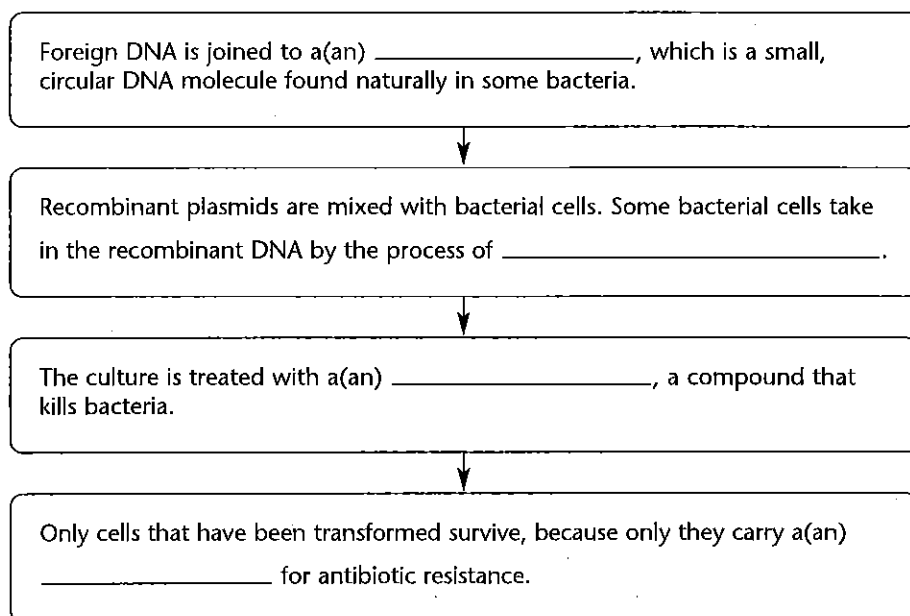
*This section tells what happens during cell transformation. It also describes techniques used to determine if transformation has been successful.*

### Introduction (page 327)

1. What occurs during transformation? \_\_\_\_\_  
\_\_\_\_\_
2. Is the following sentence true or false? Griffith's extract of heat-killed bacteria contained DNA fragments. \_\_\_\_\_

### Transforming Bacteria (pages 327-328)

3. Complete the flowchart to show the steps in transforming bacteria.



4. Give two reasons why a plasmid is useful for DNA transfer.

- a. \_\_\_\_\_  
\_\_\_\_\_
- b. \_\_\_\_\_  
\_\_\_\_\_

### Transforming Plant Cells (pages 328-329)

5. When researchers transform plant cells using a bacterium that causes plant tumors, how do researchers prevent plant tumors from forming in the transformed cells?

\_\_\_\_\_  
\_\_\_\_\_

### Chapter 13, Genetic Engineering (continued)

6. Circle the letter of each sentence that is true about transforming plant cells.
- a. Many plant cells can be transformed by using a bacterium that will, in nature, insert a tumor-producing plasmid into plant cells.
  - b. Sometimes plant cells in culture will take up DNA on their own when their cell walls are removed.
  - c. It is impossible to inject DNA directly into plant cells.
  - d. Plant cells that are transformed cannot develop into adult plants.
7. Describe what occurs in a successful transformation of cells. \_\_\_\_\_

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### Transforming Animal Cells (page 329)

8. Describe how animal cells can be transformed by directly injecting DNA.

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9. Is the following sentence true or false? The DNA molecules used for transformation of animal cells do not require marker genes. \_\_\_\_\_
10. How is a DNA molecule constructed so that it will eliminate a particular gene?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Is the following sentence true or false? Gene replacement has made it possible to identify the specific functions of genes in many organisms. \_\_\_\_\_

#### Reading Skill Practice

When you read about related concepts, a compare-and-contrast table can help you focus on their similarities and differences. Construct a table to compare and contrast transformation in bacteria, plants, and animals. Look in Appendix A for more information about compare-and-contrast tables. Do your work on a separate sheet of paper.